

**Amendments to the claims:**

This listing of claims replaces all prior versions, and listings, of claims in the application.

**Listing of claims:**

Claim 1 (currently amended): A method of manufacturing a deodorant ~~including~~ comprising the steps of:

- forming polymer particles by reacting a main monomer of (N-substituted alkyl)acrylamide, a functional monomer for bonding the polymer particles to a fibrous substrate, a cross-linking agent, and an initiator and
- loading a deodorant agent to the polymer particles,

wherein the polymer particles have a lower critical solution temperature and the polymer particles are formed at a temperature above the lower critical solution temperature,

wherein the deodorant agent is selected from the group consisting of C18:1 dioic acid, C18:2 dioic acid, and phenyl compounds,

wherein the cross-linking agent is selected from the group consisting of 2-(diethylamino)ethyl acrylate, 2-(dimethylamino)ethyl acrylate, 2-(dimethylamino)ethyl methacrylate, 2-(diethylamino)ethyl methacrylate, and N,N'-methylenebisacrylamide (BisAAM), and

wherein the main monomer is present at an amount of 80% to 90% by weight of the polymer particles, the functional monomer is present at an amount of 5% to 15% by weight of the polymer particles, and the cross-linking agent is present at an amount of 1% to 10% by weight of the polymer particles.

Claim 2 (previously presented): The method of Claim 1, wherein the main monomer is selected from the group consisting of N-isopropyl acrylamide, N-methylacrylamide, N-ethylacrylamide, N-n-butylacrylamide, N-n-propylacrylamide, N-n-propylmethacrylamide, N-isopropylmethacrylamide, N-ethylmethacrylamide, N-acryloylpiperidine, N-methacroylpiperidine, N-pyrrolidylmethylacrylamide, N-piperidylmethylacrylamide, and N,N'-diethylacrylamide, and N-isopropylacrylamide.

Claim 3 (canceled).

Claim 4 (previously presented): The method of Claim 1, wherein the functional monomer is selected from the group consisting of acrylamide, allyl alcohol, n-(isobutoxymethyl)acrylamide, N-(isobutoxymethyl)methacrylamide, m and p-vinylbenzyl alcohol, cyanomethyl methacrylate, 2-poly(ethyleneoxy)ethyl acrylate, methacryloyloxypolyglycerol, glyceryl methacrylate, 2-hydroxyethyl acrylate, 2-hydroxypropyl acrylate, 2-hydroxypropyl methacrylate, N-vinyl-2-pyrrolidone, p-aminostyrene, aconitic acid, acrylic acid, methacrylic acid, fumaric acid, itaconic acid, maleic acid,

2-methacryloyloxyethylsulfuric acid, sodium salt, pyridinium 2-methacryloyloxyethylsulfate, 3-acrylamidopropane-1-sulfonic acid, potassium salt, p-styrenesulfonic acid, sodium salt, 3-methacryloyloxypropane-1-sulfonic acid sodium salt, 2-acrylamido-2-methylpropanesulfonic acid, methacrylic acid, lithium methacrylate, 2-methacryloyloxyethyl 1 sulfonic acid ammonium p-styrenesulfonate, sodium o and p-styrenesulfonate, N-(3-acrylamidopropyl)ammonium methacrylate, N-(2-methacryloyloxyethyl)-N,N,N-trimethylammonium iodide, N-(2-methacryloyloxyethyl)-N,N,N-trimethylammonium p-toluenesulfonate, 1,2-dimethyl-5-vinylpyridinium methosulfate, N-(2-methacryloyloxyethyl)-N,N,N-trimethylammonium bromide, N,N-trimethylammonium fluoride, N-vinylbenzyl-N,N,N-trimethylammonium chloride, 3-methyl-1-vinylimidazolium methosulfate, N-(3-methacrylamidopropyl)-N-benzyl-N,N-dimethylammonium chloride, and N-(3-methacrylamidopropyl)-N,N,N-trimethylammonium chloride.

Claims 5 -8 (canceled).

Claim 9 (previously presented); The method of Claim 1, wherein the polymer particles are attached to the fibrous substrate by hydrogen-bond.

Claim 10 (previously presented): The method of Claim 1, wherein the polymer particles are attached to the fibrous substrate by a binding agent.

Claim 11 (previously presented): The method of Claim 10, wherein the binding agent is selected from the group consisting of polyglycols, polycarboxylic acids, polycarboxylates, poly(lactone)s polyols, polyamides, polyamines, polysulfonic acids, polysulfonates, gamma-aminopropyltrialkoxysilanes, gamma-isocyanatopropyltriethoxysilane, vinyl-trialkoxysilanes, glycidoxypentyltrialkoxysilanes, glutaraldehyde, and ureidopropyltrialkoxysilanes.

Claim 12 (canceled).

Claim 13 (previously presented): The method of Claim 1, wherein the phenyl compound is selected from the group consisting of phenyl alcohols, phenyl acids, and phenyl esters.

Claim 14 (previously presented): The method of Claim 13, wherein the phenyl alcohols are selected from the group consisting of benzyl alcohol, 2-hydroxybenzyl alcohol, 2,3-dimethoxybenzyl alcohol, t-butylhydroquinone, pyrocatechol, and 2-amino-4-nitrophenol.

Claim 15 (previously presented): The method of Claim 13, wherein the phenyl acids are selected from the group consisting of gallic acid, benzoic acid, salicylic acid and ferulic acid.

Claim 16 (previously presented): The method of Claim 13, wherein the phenyl esters are selected from the group consisting of benzyl cinnamate, monoterpene derivatives including geranic acid,

sterols including cholesterol, and ergosterol, steroids including testosterone, and androstenedione, flavonoids including naringenin, isosakuranetin, eriodictyol, and genistein, steryl esters including amyirin cinnamate, 2,7-naphthalenediol, oxyquinoline, and cyclodextrins and their derivatives thereof.

Claim 17 (previously presented): The method of Claim 1, wherein the deodorant agent is loaded during synthesis of the polymer particles.

Claim 18 (previously presented): The method of Claim 1, wherein the deodorant agent is loaded by hydrophobic interaction with the polymer particles.

Claim 19 (previously presented): The method of Claim 1, wherein the initiator is selected from the group consisting of persulfates, peroxides, azo-contained compounds and redox initiators.

Claim 20 (currently amended): A method of manufacturing a deodorant ~~including~~ comprising the steps of:

- forming polymer particles by reacting a main monomer of (N-substituted alkyl)acrylamido, a functional monomer for bonding the polymer particles to a fibrous substrate, a cross linking agent, an initiator, and a surface-active substance and
- loading a deodorant agent to the polymer particles,

wherein the deodorant agent is selected from the group consisting of C18:1 dioic acid, C18:2 dioic acid, and phenyl compounds,

wherein the cross-linking agent is selected from the group consisting of 2-(diethylamino)ethyl acrylate, 2-(dimethylamino)ethyl acrylate, 2-(dimethylamino)ethyl methacrylate, 2-(diethylamino)ethyl methacrylate, and N,N'-methylenebisacrylamide (BisAAM), and

wherein the main monomer is present at an amount of 80% to 90% by weight of the polymer particles, the functional monomer is present at an amount of 5% to 15% by weight of the polymer particles, and the cross-linking agent is present at an amount of 1% to 10% by weight of the polymer particles.

Claim 21 (previously presented): The method of Claim 20, wherein the main monomer is selected from the group consisting of N-isopropyl acrylamido, N-methylacrylamide, N-ethylacrylamide, N-n-butylacrylamide, N-n-propylacrylamide, N-n-propylmethacrylamide, N-isopropylmethacrylamide, N-ethylmethacrylamide, N-acroylpiperidine, N-methacroylpiperidine, N-pyrrolidylmethylacrylamide, N-piperidylmethylacrylamide, and N,N'-diethylacrylamide, and N-isopropylacrylamide.

Claim 22 (previously presented): The method of Claim 20, wherein the functional monomer is selected from the group consisting of acrylamido, allyl alcohol, n-(isobutoxymethyl)acrylamido, N-(isobutoxymethyl)methacrylamide, m and p-vinylbenzyl alcohol, cyanomethyl methacrylate, 2-

poly(ethyleneoxy)ethyl acrylate, methacryloyloxypolyglycerol, glyceryl methacrylate, 2-hydroxyethyl acrylate, 2-hydroxypropyl acrylate, 2-hydroxypropyl methacrylate, N-vinyl-2-pyrrolidone, p-aminostyrene, aconitic acid, acrylic acid, methacrylic acid, fumaric acid, itaconic acid, maleic acid, 2-methacryloyloxyethylsulfuric acid, sodium salt, pyridinium 2-methacryloyloxyethylsulfate, 3-acrylamidopropane-1-sulfonic acid, potassium salt, p-styrenesulfonic acid, sodium salt, 3-methacryloyloxypropane-1-sulfonic acid, sodium salt, 2-acrylamido-2-methylpropanesulfonic acid, methacrylic acid, lithium methacrylate, 2-methacryloyloxyethyl 1 sulfonic acid ammonium p-styrenesulfonate, sodium o and p-styrenesulfonate, N-(3-acrylamidopropyl)ammonium methacrylate, N-(2-methacryloyloxyethyl)-N,N,N-trimethylammonium iodide, N-(2-dimethyl-5-vinylpyridinium methosulfate, N-(2-methacryloyloxyethyl)-N,N,N-trimethylammonium bromide, N,N-trimethylammonium fluoride, N-vinylbenzyl-N,N,N-trimethylammonium chloride, 3-methyl-1-vinylimidazolium methosulfate, N-(3-methacrylamidopropyl)-benzyl-N,N-dimethylammonium chloride, and N-(3-methacrylamidopropyl)-N,N,N-trimethylammonium chloride.

Claim 23 (previously presented): The method of Claim 20, wherein the polymer particles are attached to the fibrous substrate by hydrogen-bond.

Claim 24 (previously presented): The method of Claim 20, wherein the polymer particles are attached to the fibrous substrate by a binding agent.

Claim 25 (previously presented): The method of Claim 24, wherein the binding agent is selected from the group consisting of polyglycols, polycarboxylic acids, polycarboxylates, poly(lactone)s polyols, polyamides, polyamines, polysulfonic acids, polysulfonates, gamma-aminopropyltrialkoxysilanes, gamma-isocyanatopropyltriethoxysilane, vinyl-trialkoxysilanes, glycidoxypropyltrialkoxysilanes, glutaraldehyde and ureidopropyltrialkoxysilanes.

Claim 26 (previously presented): The method of Claim 20, wherein the phenyl compound is selected from the group consisting of phenyl alcohols, phenyl acids, and phenyl esters.

Claim 27 (previously presented): The method of Claim 26, wherein the phenyl alcohols are selected from the group consisting of benzyl alcohol, 2-hydroxy benzyl alcohol, 2,3-dimethoxybenzyl alcohol, t-butylhydroquinone, pyrocatechol, and 2-amino-4-nitrophenol.

Claim 28 (previously presented): The method of Claim 26, wherein the phenyl acids are selected from the group consisting of gallic acid, benzoic acid, salicylic acid and ferulic acid.

Claim 29 (previously presented): The method of Claim 26, wherein the phenyl esters are selected from the group consisting of benzyl cinnamate, monoterpene derivatives including geranic acid, sterols including cholesterol and ergosterol, steroids including testosterone, and androstenedione, flavonoids including naringenin, isosakuranetin, eriodictyol, and genistein, steryl esters including



amyrin cinnamate, 2,7-naphthalenediol, oxyquinoline, and cyclodextrins and their derivatives thereof.

Claim 30 (previously presented): The method of Claim 20, wherein the deodorant agent is loaded during synthesis of the polymer particles.

Claim 31 (previously presented): The method of Claim 20, wherein the deodorant agent is loaded by hydrophobic interaction with the polymer particles.

Claim 32 (previously presented): The method of Claim 20, wherein the initiator is selected from the group consisting of persulfates, peroxides, azo-contained compounds and redox initiators.